

## AMENDMENTS TO THE CLAIMS

1           1.       (Currently amended) A method of consolidating using a computer system  
2 to consolidate multiple models using an automated process, wherein each model  
3 comprises only rules that define a non-cyclic chain of dependencies among families and  
4 features of families and include at least one rule having a constraint that references a non-  
5 ancestral family to the constraint, the method comprising:

6           combining the models into a single, consolidated model that maintains [[the]] a  
7           non-cyclic chain of dependencies among families and features of families,  
8           wherein each model comprises only rules that define a non-cyclic chain of  
9           dependencies among families and features of families and at least one  
10           model includes a rule that causes a configuration conflict with another  
11           model.

1           2.       (Original)     The method of claim 1 further comprising:  
2           detecting any inconsistencies between rules included in the consolidated model;  
3           and  
4           attempting to resolve any detected inconsistencies.

1           3.       (Currently amended) A computer system for consolidating multiple  
2 models, wherein each model comprises only rules that define a non-cyclic chain of  
3 dependencies among families and features of families and include at least one rule having  
4 a constraint that references a non-ancestral family to the constraint, the system  
5 comprising:

6           a processor; and  
7           a memory, coupled to the processor, having code stored therein and executable by  
8           the processor, the code comprising:

9           a model consolidation module to combine the models into a single,  
10           consolidated model that maintains [[the]] a non-cyclic chain of  
11           dependencies among families and features of families, wherein

12                    each model comprises only rules that define a non-cyclic chain of  
13                    dependencies among families and features of families and at least  
14                    one model includes a rule that causes a configuration conflict with  
15                    another model.

1            4.        (Currently amended) A computer program product having instructions  
2 encoded therein to consolidate multiple models, wherein each model comprises only rules  
3 that define a non-cyclic chain of dependencies among families and features of families  
4 and include at least one rule having a constraint that references a non-ancestral family to  
5 the constraint, the instructions comprising code to:  
6            combine the models into a single, consolidated model that maintains [[the]] a non-  
7            cyclic chain of dependencies among families and features of families,  
8            wherein each model comprises only rules that define a non-cyclic chain of  
9            dependencies among families and features of families and at least one  
10           model includes a rule that causes a configuration conflict with another  
11           model.

1            5.        (New) The method of claim 1 wherein the models represent configuration  
2 models of vehicles.

1            6.        (New) The method of claim 1 wherein the consolidated model includes  
2 only buildable configurations.

1            7.        (New) The method of claim 1 wherein combining the models into a  
2 single, consolidated model further comprises:  
3            extending a rule from one of the models into an ancestor of a family of a defining  
4            constraint; and  
5            repairing the extension of the rule in a child of the ancestor of the family of the  
6            defining constraint.

1           8.       (New) The method of claim 1 wherein combining the models into a  
2 single, consolidated model further comprises:  
3           loading the models into a memory of the computer system;  
4           constructing a directed acyclic graph of all rules in all the models;  
5           for each model, determining which portions of an overall configuration space for  
6                 which the model does not provide a buildable configuration; and  
7           for each model, constraining statements of the rules with in the model to fall  
8                 within a space of defining features of the model;

1           9.       (New) The method of claim 8 wherein determining which portions of an  
2 overall configuration space for which each model does not provide a buildable  
3 configuration further comprises:  
4           determining which families are ancestors of families of defining constraints; and  
5           subtracting a right hand side and a left hand side of each rule of each family that  
6                 are ancestors of families of defining constraints from a rule representing  
7                 all buildable configurations.

1           10.     (New) The system of claim 3 further comprising code to:  
2 detect any inconsistencies between rules included in the consolidated model; and  
3 attempt to resolve any detected inconsistencies.

1           11.     (New) The system of claim 3 wherein the models represent configuration  
2 models of vehicles.

1           12.     (New) The system of claim 3 wherein the consolidated model includes  
2 only buildable configurations.

1           13.     (New) The system of claim 3 further comprising code to:  
2 extend a rule from one of the models into an ancestor of a family of a defining  
3 constraint; and

4 repair the extension of the rule in a child of the ancestor of the family of the  
5 defining constraint.

1 14. (New) The system of claim 3 further comprising code to:  
2 load the models into a memory of the computer system;  
3 construct a directed acyclic graph of all rules in all the models;  
4 for each model, determine which portions of an overall configuration space for  
5 which the model does not provide a buildable configuration; and  
6 for each model, constrain statements of the rules with in the model to fall within a  
7 space of defining features of the model;

1 15. (New) The system of claim 14 further comprising code to:  
2 determine which families are ancestors of families of defining constraints; and  
3 subtract a right hand side and a left hand side of each rule of each family that are  
4 ancestors of families of defining constraints from a rule representing all  
5 buildable configurations.

1 16. (New) The computer program product of claim 4 further comprising code  
2 to:  
3 detect any inconsistencies between rules included in the consolidated model; and  
4 attempt to resolve any detected inconsistencies.

1 17. (New) The computer program product of claim 4 wherein the models  
2 represent configuration models of vehicles.

1 18. (New) The computer program product of claim 4 wherein the  
2 consolidated model includes only buildable configurations.

1 19. (New) The computer program product of claim 4 further comprising code  
2 to:  
3 extend a rule from one of the models into an ancestor of a family of a defining  
4 constraint; and

5           repair the extension of the rule in a child of the ancestor of the family of the  
6           defining constraint.

1           20.     (New) The computer program product of claim 4 further comprising code  
2     to:  
3           load the models into a memory of the computer system;  
4           construct a directed acyclic graph of all rules in all the models;  
5           for each model, determine which portions of an overall configuration space for  
6           which the model does not provide a buildable configuration; and  
7           for each model, constrain statements of the rules with in the model to fall within a  
8           space of defining features of the model;

1           21.     (New) The computer program product of claim 20 further comprising  
2     code to:  
3           determine which families are ancestors of families of defining constraints; and  
4           subtract a right hand side and a left hand side of each rule of each family that are  
5           ancestors of families of defining constraints from a rule representing all  
6           buildable configurations.

1           22.     (New) A computer system for performing an automatic consolidation of  
2     multiple models of configurable products, the system comprising:  
3           means for combining the models into a single, consolidated model that maintains  
4           a non-cyclic chain of dependencies among families and features of  
5           families, wherein each model comprises only rules that define a non-cyclic  
6           chain of dependencies among families and features of families and at least  
7           one model includes a rule that causes a configuration conflict with another  
8           model.